

### **REMARKS**

Applicants thank Examiner Tischler for the very helpful telephone conference of November 3, 2011, and submit this paper in response to the final Office Action dated September 9, 2011. This paper is timely filed, as it is filed within two months of the mailing date of the Office Action.

### **STATUS OF THE CLAIMS**

Claims 1-3, 6-17, and 21 are pending. New dependent claims 22 and 23 are added. Support for new claims 22 and 23 is found, for example, in paragraph [0050] of the application and Fig. 3. No new matter is added. Claims 1-3, 6-15, 17 and 21 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 6,533,124 to Tacito (Tacito). Claims 1-3, 6-17 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 6,509,537 to Krieg et al. (Krieg).

### **RESPONSE TO REJECTION OF CLAIMS UNDER 35 U.S.C. §102(b)**

Claim 1, the sole independent claim at issue, recites, in part, a method for reprocessing used plastic containers comprising the steps: a) analyzing the degree of contamination of the plastic, b) determining the decontamination process parameters as a function of the degree of contamination found in the analyzing step, wherein a process temperature adapted to the degree of contamination is determined as a decontamination process parameter, and/or wherein a process time that is adapted to the degree of contamination is determined as a decontamination process parameter, and c) conducting controlled decontamination of the plastic according to the decontamination process parameters thus determined, such that the decontamination is automatically adapted to the actual contamination of the plastic.

In contrast, Applicants respectfully submit that Tacito does not disclose or suggest “determining the decontamination process parameters *as a function of* the degree of contamination found in the analyzing step, wherein a process temperature *adapted to* the degree of contamination is determined as a decontamination process parameter,” as recited in independent claim 1.

Tacito discloses an apparatus that continuously discriminates between a plastic material containing an unacceptable level of contaminants and a plastic material that contains an acceptable level of volatiles or contaminants. More specifically, the Tacito apparatus first diverts samples of material (at sampling system 14 in Fig. 1) to a detector apparatus 16 that includes a conveyor 18 having a barrel and an output section 20. *See, e.g.*, col. 5, lines 26-32 and Fig. 1. The output section 20 is in communication with a detection system 22 that either: (1) identifies a level of volatile contaminant that exceeds a preselected threshold level, and if so, diverts the material to the “Contaminated Material” section, as illustrated in Fig. 1; or (2) identifies a volatile contaminant level below a preselected threshold level, and, if so, such material is identified as “Accepted PCR Material” for processing/cleaning into “clean” flakes. *See, e.g.*, Fig. 1 and col. 6, lines 49-53. Such processing/cleaning from “dirty” flakes to “clean” flakes is illustrated, for example, in Fig. 2.

Before such material reaches the detection system 22, however, the material is placed onto the conveyor 18 of the detector apparatus 16 that contains a plurality of heating zones. The temperatures of the conveyor 18 are set such that the temperatures drive trapped volatiles/contaminants from the material so that they are more easily detected by the detection system 22 at output 20 (Fig. 2). The temperature of the conveyor 18 is not adapted to any degree of contamination, let alone determined as a decontamination process parameter, as recited in claim 1.

While pages 2 and 3 of the Office Action appear to refer the temperature disclosed in Tacito as “reading on the claims process temperature,” that temperature is related to the *detection* or analysis of the degree of contamination of a material (e.g., step a) of claim 1). This is similar to Fine, which was cited and overcome by the Applicants’ arguments presented in the amendment dated July 14, 2011. More specifically, the temperature disclosed in Tacito has nothing to do with determining decontamination process parameters, let alone determining such decontamination process parameters *as a function of* the degree of contamination found in the analyzing step, as recited in independent claim 1. Regardless of the degree of contamination in the material, Tacito teaches that the conveyor 18 of the detector apparatus 16 (Fig. 1) contains one or a plurality of heating zones “that are set such that the temperature will be sufficient to drive trapped volatiles from the dirty PCT PET

plastic.” See Tacito, col. 5, lines 44-46. The temperature zones may be adjusted, but the temperature is not varied based on the degree of contamination found in the analyzing step. In fact, in Tacito, the analyzing the degree of contamination step has not yet even occurred when this temperature is set, so it could not possibly be determined as a function of the degree of contamination found in the analyzing step. Rather, analyzing the degree of contamination of the plastic in Tacito takes place at the output 20 by detection system 22 *after* samples of plastic material are heated at set zone temperatures. *See, e.g.*, Fig. 1.

In addition, Tacito also fails to disclose or suggest determining the contamination process parameters as a function of the degree of contamination found in the analyzing step, wherein a process time that is adapted to the degree of contamination is determined as a decontamination process parameter, as also recited in claim 1. While page 3 of the Office Action appears to refer to col. 6, lines 1-38 as “reading on the claimed process time,” the time referred to in Tacito relates to the residence time of the material in the barrel of the conveyor 18 of the *detecting* apparatus 16. *See, e.g.*, col. 6, lines 2-7 (“adjusting the angle of the auger 18 ... to increase the amount of material in the barrel...as well as the residence time of the material in the barrel, thereby providing more sample per unit section of the barrel for eventual *detection*”) (emphasis added). Thus, similar to the temperature explained above, and also similar to that disclosed in Fine, which was cited and overcome by the Applicants’ arguments presented in the July 14, 2011 amendment, this time relates to the *detection* or analysis of the degree of contamination in the material, which, in Tacito, is the time the material stays on the barrel of the conveyor 18 before it reaches the output 20 and the volatile level is detected by the detection system 22, for example. The time may be adjusted depending upon the length of the barrel, for example, but the time is not varied or adjusted based on the degree of contamination found in the analyzing step. Again, this time could not possibly be determined as a function of the degree of contamination found in the analyzing step because the analyzing the degree of contamination step in Tacito occurs at the detection system 22, *after* the time the material stays on the barrel of the conveyor 18 in the detecting apparatus 16.

Still further, because Tacito fails to disclose or suggest determining process parameters as a function of the degree of contamination found in the analyzing step, Tacito

cannot possibly disclose or suggest conducting controlled decontamination of the plastic according to the decontamination process parameters thus determined, such that the decontamination is automatically adapted to the actual contamination of the plastic, as also recited in claim 1. While Tacito discloses decontamination of a plastic, *see, e.g.*, col. 6, lines 61-67, Fig. 2 (“the accepted PCR material is stored at 42 followed by washing, a density separation treatment...followed by a rinse step, and drying...[t]hen, at 44, such “clean” flake is again sampled through the system of FIG. 1”), Tacito conducts such decontamination based on predetermined process data from the recycling plant, such as critical control parameters, *see, e.g.*, col. 6, lines 21-24; the decontamination has nothing to do with process parameters determined as a function of the degree of contamination found in the analyzing step, as recited in claim 1.

Because Tacito fails to disclose each and every element of claim 1, Applicants respectfully submit that Tacito does not anticipate claim 1. As such, claim 1, and each of the claims depending therefrom, are in allowable form.

### **RESPONSE TO REJECTION OF CLAIMS UNDER 35 U.S.C. §103**

As noted above, independent claim 1 also stands rejected under 35 U.S.C. §103(a) as being unpatentable over Krieg in view of Tacito. We respectfully disagree.

Krieg discloses a method and device for detecting and differentiating between contaminants, for example. The device includes a laser beam 4 that is guided over the material 3 in a linear manner using an optical system 2. Optical effects are detected by the optical system 2 and supplied to a spectrometer 11, whose signals are processed by an evaluation unit 12. *See, e.g.*, Krieg col. 2, lines 33-35. Following classification of the material 3 into individual color classes and contaminants, for example, they are sorted into different portions 13 (Fig. 1), which can be transported to a disposal system, if contaminated.

As acknowledged by the Examiner on page 4 of the Office Action, Krieg fails to disclose or suggest conducting controlled decontamination of the plastic, let alone conducting controlled decontamination of the plastic according to the decontamination process parameters thus determined, as further recited in claim 1. Krieg only discloses

*separation* of contaminated plastic from cleaner plastic such that the contaminated plastic is not further used. As such, the Office Action cites to Tacito and asserts that the combination of Krieg in view of Tacito renders claim 1 obvious. However, because this element is also completely missing from Tacito, as explained above, even if Krieg was combined with or modified by Tacito, the results would not satisfy claim 1.

Further, like Tacito, Krieg also fails to disclose or suggest determining decontamination process parameters as a function of the degree of contamination found in the analyzing step, wherein a process temperature adapted to the degree of contamination is determined as a decontamination process parameter, as recited in independent claim 1. In fact, Krieg is completely silent as to temperature as any process parameter, let alone as a decontamination process parameter. Because this element is completely missing from both Tacito, as explained above, and Krieg, there can be no *prima facie* case of the obviousness, and the rejection of claim 1 should be withdrawn.

Still further, and also like Tacito, Krieg further fails to disclose or suggest a process time that is adapted to the degree of decontamination is determined as a decontamination process parameter, as recited in claim 1. Krieg is also completely silent as to process time, let alone as a decontamination process parameter. Because this element is also completely missing from both Tacito, as explained above, and Krieg, there can be no *prima facie case* of obviousness for this reason as well, and the rejection of claim 1 should be withdrawn.

For at least these reasons, Applicants respectfully submit that independent claim 1, and each of the claims dependent therefrom, are in allowable form, and the rejection under 35 U.S.C. §103 should be withdrawn.

### **NEW DEPENDENT CLAIMS 22 AND 23**

New dependent claim 22 recites the method according to claim 1, wherein the process temperature is determined and set after the degree of contamination of the plastic is analyzed.

New dependent claim 23 recites the method according to claim 1, wherein the process time is determined and set after the degree of contamination of the plastic is analyzed.



Tacito fails to disclose a process temperature that is determined and set after the degree of contamination is analyzed, as recited in new claim 22, and also fails to disclose a process time that is determined and set after the degree of contamination of the plastic analyzed, as recited in new claim 23. Instead, in Tacito, as explained above, both the temperature zones and the residence time of the material in the barrel of the conveyor 18 of the detecting apparatus 16 are set *before* the degree of contamination of the plastic is analyzed at the output 20 by detection system 22. *See, e.g.*, Tacito, Fig. 1, col. 5, lines 43-48. As such, because these elements are completely missing from Tacito, Tacito can not anticipate dependent claims 22 and 23, and there also can be no *prima facie* case of obviousness in view of Tacito.

In addition, Tacito teaches away from a method wherein the process temperature is determined and set *after* the degree of contamination is analyzed, as recited in claim 22. For example, Tacito teaches setting the temperature and heating the plastic *before* the degree of contamination of the plastic is analyzed, such that “temperatures will be sufficient to drive trapped volatiles from dirty PCT PET plastic” *before* analysis. *See* Tacito, col. 5, lines 44-46. In a similar manner, Tacito also teaches away from a method wherein the process time is determined and set *after* the degree of contamination is analyzed, as recited in claim 23. Tacito teaches setting the residence time of the material on the barrel of the conveyor 18 *before* the plastic is analyzed.

Still further, modifying Tacito such that either the process temperature or time is determined and set after the degree of contamination of the plastic is analyzed, as recited in claims 22 and 23, respectively, would require a significant redesign of the Tacito system and drastically alter its operation. For example, if the temperature was set after the plastic was analyzed at the output 20 by detection system 22, trapped volatiles from the dirty plastic on the conveyor 18 would not be sufficiently driven from the plastic before detection, interfering, at the least, with an accurate analysis of the degree of contamination of the plastic by detection system 22. Likewise, if the time was set after the plastic was analyzed at the output 20, the materials would not remain on the barrel of the conveyor 18 for an accurate amount of time, also interfering with how trapped volatiles in the dirty plastic are sufficiently driven from the plastic, and, ultimately, an accurate analysis of the degree of contamination.

As such, for at least these reasons, Applicants submit that new dependent claims 22 and 23 are also in allowable form.

### **CONCLUSION**

In view of the above remarks, Applicants believe the pending application is in condition for allowance. Should there be any outstanding issues that the Office believes may be remedied via teleconference, please contact the undersigned at 312-474-6300. While Applicants believe no additional fees are due, in the event any additional fees are due, please kindly charge the cost thereof to our Deposit Acct. No.: 13-2855, under order number 30051/41842.

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